

### REMARKS

This responds to the Office Action mailed on December 17, 2003.

Claims 15-18 are amended, claim 14 is canceled. As a result, claims 1-13 and 15-26 are now pending in this application.

The proposed amendments to the claims are fully supported by the specification as originally filed, and no new matter will be added by entry of the proposed amendment. The amendments are proposed to clarify the claims and are not intended to limit the scope of equivalents to which any claim element may be entitled. Applicants respectfully request reconsideration of the above-identified application in view of the amendments above and the remarks that follow.

#### §102 Rejection of the Claims

Claims 1-6, 14-16, 18-20, 22 and 23 were rejected under 35 USC § 102(b) as allegedly being anticipated by Karlsen et al. (WO 97/15124A1). This rejection is respectfully traversed.

Claim 1 recites in part: “a *convergence* metric computation unit.” (emphasis added)

Claim 15 has been rewritten into an independent claim and, as now presented, contains some elements from originally-filed claim 14 from which it was originally dependent. The scope of claim 15 has not been narrowed by this amendment. Claim 15 recites in part: “determining a *convergence* metric value that describes a level of *convergence* of the adaptive filter.” (emphasis added)

Claim 18 recites in part: “A method of recognizing the occurrence of a real-time error and *reconverging* an adaptive filter comprising: ...resetting the adaptive filter such that *convergence* begins anew...” (emphasis added)

Karlsen simply does not disclose ‘a *convergence* metric computation unit,’ ‘a *convergence* metric value that describes a level of *convergence*,’ nor ‘resetting the adaptive filter such that *convergence* begins anew.’ (emphasis added) Thus, Karlsen does not disclose each element of claims 1, 15, and 18. Accordingly, claims 1, 15, 18 are patentable.

§103 Rejection of the Claims

Claims 7-13 were rejected under 35 USC § 103(a) as allegedly being unpatentable over Rigstad et al. (U.S. 6,044,150) in view of Karlsen et al. Claims 24-26 were also rejected under 35 USC § 103(a) as allegedly being unpatentable over Karlsen et al. in view of Rigstad et al. Claim 17 was also rejected under 35 USC § 103(a) as allegedly being unpatentable over Karlsen et al. in view of Bergsman et al. (U.S. 5,131,011). Claim 21 was also rejected under 35 USC § 103(a) as allegedly being unpatentable over Karlsen et al. in view of Yatrou et al. (U.S. 5,343,522). These rejections are respectfully traversed.

The Office Action has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To do that the Office Action must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.*

In order for the Office Action to establish a *prima facie* case of obviousness, there must be some suggestion or motivation to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination must be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

For claims 7, 17 and 24, Applicant respectfully submits that the Office Action did not make out a *prima facie* case of obviousness because it provides no evidence of a suggestion to combine the cited references. Such a suggestion to combine must come from the prior art and not from Applicant's specification nor from impermissible hindsight.

Claim 7 recites in part: "wherein the echo cancellation unit includes a model store to store a current echo model when a real-time error occurs."

The Office Action noted that Rigstad does not anticipate "a model store" as claimed in claim 7. Instead, the Action looks to Karlsen and states on page 7 of the Action: "...It would have been obvious to one skilled in the art at the time of the invention to apply coefficient storing as taught by Karlsen to the speakerphone taught by Rigstad for the purpose of having available a set of coefficients that are known to provide a good quality output signal."

However, the Action does not disclose motivation or suggestion in Rigstad to look to Karlsen to modify Rigstad to form the claimed invention. Because neither the suggestion to make the claimed combination nor the reasonable expectation of success thereof was stated in the Action to be found in Rigstad, the Action did not establish a prima facie case of obviousness. Accordingly, the Action relied on impermissible hindsight to make the combination of references. Applicant respectfully submits that the Office Action has not provided evidence from Rigstad for a suggestion or motivation to combine the references.

Accordingly, Applicant submits that claim 7 is patentable.

Claim 24 recites in part: "An article having a machine readable medium with instructions for performing a method of reconverging an adaptive filter disposed thereon."

The Office Action noted that Karlsen does not anticipate "an article" as claimed in claim 24. Instead, the Action looks to Rigstad and states on page 9 of the Action: "...It would have been obvious to one skilled in the art at the time of the invention to apply personal computer implementation as taught by Rigstad to the method taught by Karlsen for the purpose of utilizing a natural platform for implementation of the method (Rigstad: column 1, lines 61-64)."

However, the Action does not disclose motivation or suggestion in Karlsen to look to Rigstad to modify Karlsen to form the claimed invention. Because neither the suggestion to make the claimed combination, nor the reasonable expectation of success thereof, was stated in the Action to be found in Karlsen, the Action did not establish a prima facie case of obviousness. Accordingly, the Action relied on impermissible hindsight to make the combination of references. Applicant respectfully submits that the Office Action has not provided evidence from Karlsen for a suggestion or motivation to combine the references.

Accordingly, Applicant submits that claim 24 is patentable.

Claim 17 has been rewritten into an independent claim and, as now presented, contains some elements from originally-filed claim 14 from which it was originally dependent. The scope of claim 17 has not been narrowed by this amendment. Claim 17 recites in part: "wherein comparing comprises: normalizing the stored model; normalizing the current echo model; and measuring a Euclidean distance between the stored model and the current echo model.."

The Office Action noted that Karlsen does not anticipate “comparing” as claimed in claim 17. Instead, the Action looks to Bergmans and states on page 9 of the Action: “...It would have been obvious to one skilled in the art at the time of the invention to apply Euclidean distance measurement as taught by Bergmans to the method taught by Karlsen for the purpose of simplifying the computation of the difference between the filters. Further, examiner has taken official notice of the fact that normalization of vectors is well known. It would have been obvious to one skilled in the art at the time of the invention to apply well-known normalization to the combination of Karlsen and Bergmans for the purpose of ensuring the computation remained within the capability of the processor.”

However, the Action does not disclose motivation or suggestion in Karlsen to look to Bergmans to modify Karlsen to form the claimed invention. Because neither the suggestion to make the claimed combination nor the reasonable expectation of success thereof was stated in the Action to be found in Karlsen, the Action did not establish a prima facie case of obviousness. Accordingly, the Action relied on impermissible hindsight to make the combination of references. Applicant respectfully submits that the Office Action has not provided evidence from Karlsen for a suggestion or motivation to combine the references.

Accordingly, Applicant submits that claim 17 is patentable.

Claims 2-6, 8-13, 16, 19-23 and 25-26 depend, directly or indirectly, on one of claims 1, 7, 15, 18, or 24, and are patentable over Karlsen, Rigstad, Bergsman, and Yatrou, taken singly or in the combination proposed in the Office Action, for the reasons argued above. If an independent claim is patentable under 35 U.S.C. § 102, then any claim depending therefrom is also patentable. These dependent claims are also patentable in view of the additional elements which they provide to the patentable combination.

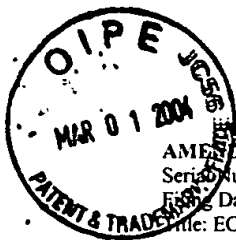
For example, consider claim 6. Dependent claim 6, including claim 5, recites in part: “a reconvergence unit to restore the saved model as the current echo model, wherein the reconvergence unit comprises: a distance measurement unit to compare the current echo model and the saved model over a plurality of time lags; and a comparator coupled to the distance measurement unit, to restore the saved model as the current echo model at a matching time lag.”

Page 3 of the Office Action, regarding claim 5, states that Karlsen discloses “copying the programmable filter to the adaptive filter (i.e. restoring the saved model as the current echo model)” and refers to Fig. 7, step 760 of Karlsen for this element. However, Fig. 7, step 760 does not *comprise* “a distance measurement unit to compare the current echo model and the saved model over a plurality of time lags” Page 2 of the Action discloses:

“Regarding claim 2 [which recites in part: ‘a distance measurement unit to compare the current echo model and the saved model over a plurality of time lags’] Karlsen further discloses comparison between the adaptive filter output quality (Fig. 7, step 5, q.sub.a)) and the programmable filter output quality (Fig. 7, step 5, q.sub.p) which, because the filters operate on the same input signal (Fig. 4, reference x(n)) constitutes a measure of the difference (i.e. distance) between the respective filter models; and determination of whether the difference exceeds a threshold (i.e., threshold comparison)(Fig. 7, step 530, B) as part of the determination of whether the programmable filter is copied to the adaptive filter (i.e. to facilitate restoring the saved model as the current echo model) (Fig. 7, step 760).

Thus, Karlsen does not disclose each element of claim 6 because Karlsen does not disclose a “reconvergence unit [comprising] a distance measurement unit to compare the current echo model and the saved model over a plurality of time lags; and a comparator coupled to the distance measurement unit, to restore the saved model as the current echo model at a matching time lag.” Accordingly, claim 6 is patentable.

Applicants believe the proposed amended claims are patentable, and that the amendments and additions made herein are within the scope of a search properly conducted under the provisions of MPEP 904.02. Accordingly, Applicants submit that claims 1-13, 15-26 are patentable.



AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/584576

Filing Date: May 31, 2000

Title: ECHO CANCELLATION SYSTEM HAVING FAST RECONVERGENCE

Assignee: Intel Corporation

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Dkt: 884.263US1 (INTEL)

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney, Lucinda Price at (352) 331-0202, or Applicant's below-named representative at (612) 349-9592 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 26 day of February 2004.

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